(a) 10487.80 units

(b) 12585.65 units

(c) 9465.35 units

(d) 11575.40 units

III. Total Dividend received by Mr. X as on 31/03/2023 shall be ....

(a) ₹ 20,625.50

(b) ₹ 20,870.45

(c) ₹ 20,975.60

(d) ₹ 21,565.75

IV. NAV per unit as on 31/03/2023 shall be approximately.................

(a) ₹ 24.65

(b) ₹ 24.85

(c) ₹ 25.95

(d) ₹ 26.45

V. NAV as on 31/03/2024 shall be approximately.................

(a) ₹ 20.50

(b) ₹ 25.95

(c) ₹ 26.75

(d) ₹ 27.20

Case Scenario 3

The Asset Management Company of the mutual fund (MF) has declared a dividend of 9.98% on the units under the dividend reinvestment plan for the year ended 31st March 2021. The investors are issued additional units for the dividend at the rate of closing Net Asset Value (NAV) for the year as per the conditions of the scheme.

The closing NAV was ₹ 24.95 as on 31^{st} March 2021. An investor Mr. X who is having 20,800 units at the year-end has made an investment in the units before the declaration of the dividend at the rate of opening NAV plus an entry load of ₹ 0.04. The NAV has appreciated by 25% during the year.

Assume the face value of the unit as ₹ 10.00.

Based on above Case Scenario, answer the following questions:

I. The Opening NAV of the Asset Management Company shall be …………

(a) ₹ 20.24

(b) ₹ 19.96

(c) ₹ 18.75

(d) ₹ 17.65

II. The Number of the units purchased shall be ………………….

(a) 18750

(b) 17500

(c) 20450

(d) 20000

III. Original amount of the investment shall be ……………..

(a) ₹ 4,00,000

(b) ₹ 6,50,000

(c) ₹ 3,55,000

(d) ₹ 5,65,000

III. Which of the following statement about Expense ratio is/ are incorrect:

(i) It is the percentage of income that were spent to run a mutual fund.

(ii) It includes advisory fees, travel costs, registrar fees , custodian fees, etc.

(iii) It includes Brokerage costs for trading of Portfolio.

(iv) High Expense Ratio can seriously undermine the performance of a mutual fund scheme.

(a) (i), (ii), (iii)

(b) (i), (iii)

(c) only (iii)

(d) only (i)

IV. ………………..considers and uses downside deviation instead of total standard deviation in denominator.

(a) Expense Ratio

(b) Sharpe Ratio

(c) Treynor Ratio

(d) Sortino Ratio

Case Scenario 4

There are two Mutual Funds viz. D Mutual Fund Ltd. and K Mutual Fund Ltd. Each having close ended equity schemes.

NAV as on 31-12-2014 of equity schemes of D Mutual Fund Ltd. is ₹ 70.71 (consisting 99% equity and remaining cash balance) and that of K Mutual Fund Ltd. is 62.50 (consisting 96% equity and balance in cash).

Following is the other information:

Particular	Equity Schemes	
	D Mutual Fund Ltd.	K Mutual Fund Ltd.
Sharpe Ratio	2	3.3
Treynor Ratio	15	15
Standard deviation	11.25	5

There is no change in portfolios during the next month and annual average cost is ₹ 3 per unit for the schemes of both the Mutual Funds.

If Share Market goes down by 5% within a month, calculate expected NAV after a month for the schemes of both the Mutual Funds.

For calculation, consider 12 months in a year and ignore number of days for particular month.

I. Beta of K Mutual Fund Ltd. is ....

(a) 1.50

(b) 1.75

(c) 1.10

(d) 1.25

II. NAV after 1 month of K Mutual Fund is ....

(a) 65.21

(b) 58.59

(c) 58.95

(d) 65.92

CHAPTER – 03

DERIVATIVES

PART – 01: OPTION

(I) BASICS

Question – 01

The equity share of VCC Ltd. is quoted at ₹ 210. A 3-month call option is available at a premium of ₹ 6 per share and a 3-month put option is available at a premium of ₹ 5 per share. Ascertain the net payoffs to the option holder of a call option and a put option separately.

(i) The strike price in both cases in ₹ 220; and

(ii) The share price on the exercise day is ₹ 200,210,220,230,240.

Also indicate the price range at which the call and the put options may be gainfully exercised.

(SM TYK – 20)

Solution:

Net payout for the holder of the call option

Share Price	Action	Gross Payoff	Premium	Net Payoff
200	Lapsed	0	6	(6)
210	Lapsed	0	6	(6)
220	Lapsed	0	6	(6)
230	Exercised	10	6	4
240	Exercised	20	6	14

Net payoff for the holder of the put option

Share Price	Action	Gross Payoff	Premium	Net Payoff
200	Exercised	20	5	15
210	Exercised	10	5	5
220	Lapsed	0	5	(5)

230	Lapsed	0	5	(5)
240	Lapsed	0	5	(5)

The call option can be exercised gainfully for any price above ₹ 226 (₹ 220 + ₹ 6) and put option for any price below ₹ 215 (₹ 220 – ₹ 5).

Question – 02

Hari is holding 100 equity shares of VCC Ltd. which is being quoted at ₹ 210 per share. He is interested in hedging downside risk of his holding as he is going to sell them after 2 month. A 2-month Call option is available at a premium of ₹ 6 per share and a 2- month put option is available at a premium of ₹ 5 per share. The strike price in both cases is ₹ 220.You are required to:

(i) Suggest the position Hari should take in the option market to hedge his holding in the VCC Ltd.

(ii) Calculate his final position after 2 months if after 2 months i.e. on the day of exercise the actual market price of per share of VCC Ltd. happens to be ₹ 200, ₹ 210, ₹ 220, ₹ 230 and ₹ 240.

(MTP October – 2023)

Solution:

(i) Since Hari holds 100 equity shares, he should buy equal no. of Put option i.e. 100 put options in the same stock to hedge his position.

Total Premium amount to be paid = 5 × 100 Put = ₹ 500

(ii) Net Position after 2-months

Share Price	Action	Gross Payoff	Pre-mium	Net Payoff	Sell Share	Net Position	Total Position
200	Exercised	20	5	15	200	215	21,500
210	Exercised	10	5	5	210	215	21,500
220	Lapsed	0	5	(5)	220	215	21,500
230	Lapsed	0	5	(5)	230	225	22,500
240	Lapsed	0	5	(5)	240	235	23,500

Thus, from above table it can be observed in any case the value of holding of Hari in VCC Ltd. shall not go below ₹ 215 per share.

Question – 03

Mr. A is holding 1,000 shares of face value of ₹ 100 each of M/s. ABC Ltd. He wants to hold these shares for long term and have no intention to sell.

On 1st January 2020, M/s. XYZ Ltd. has made short sales of M/s. ABC Ltd.'s shares and approached Mr. A to lend his shares under Stock Lending Scheme with following terms:

(i) Shares to be borrowed for 3 months from 1st January 2020 to 31st March 2020.

(ii) Lending Charges/Fees of 1% to be paid every month on the closing price of the stock quoted in Stock Exchange and

(iii) Bank Guarantee will be provided as collateral for the value as on 1st January 2020.

Other Information :

(a) Cost of Bank Guarantee is 8% per annum.

(b) On 29th February 2020 M/s. ABC Ltd. declared dividend of 25%.

(c) Closing price of M/s. ABC Ltd.'s shares quoted in Stock Exchange on various dates are as follows :

Date	Share Price in Scenario – 1 Bullish	Share Price in Scenario – 2 Bearish
1st January 2020	1,000	1,000
31st January 2020	1,020	980
29th February 2020	1,040	960
31st March 2020	1,050	940

You are required to find out :

(i) Earnings of Mr. A through Stock Lending Scheme in both the scenarios,

(ii) Total earnings of Mr. A during 1st January 2020 to 31st March 2020 in both the scenarios,

(iii) What is the profit or loss to M/s. XYZ by shorting the shares using through Stock Lending Scheme in both the scenarios ?

(Exam January – 2021)

Solution:

1. Earnings of Mr. A

	I	II
Lending Charges		
31/01/2020	10.20	9.80
29/02/2020	10.40	9.60
31/03/2020	10.50	9.40
Lending Charges	31.10	28.80
(×) No. of Shares	1,000	1,000
Earnings	31,100	28,800

2. Total Earnings of Mr. A

	I	II
Lending Charges	31.10	28.80
(+) Dividend [100 × 25%]	25.00	25.00
	56.10	53.80
(×) No. of Shares	1,000	1,000
Total	56,100	53,800

3. Profit/Loss to M/s XYZ

	I	II
Lending Charges	(31.10)	(28.80)
Bank Guarantee [1,000 × 8% × 3/12]	(20.00)	(20.00)
Gain/Loss on Short Selling	(50.00)	60.00
	(101.10)	11.20
(×) No. of Shares	1,000	1,000
Gain/Loss	(1,01,100)	11,200

(II) OPTION STRATEGIES

Question – 04

Mr. X established the following strategy on the Delta Corporation's stock :

(1) Purchased one 3-month call option with a premium of ₹ 30 and an exercise price of ₹ 550.

(2) Purchased one 3-month put option with a premium of ₹ 5 and an exercise price of ₹ 450.

Delta Corporation's stock is currently selling at ₹ 500.

CALCULATE profit or loss, if the price of Delta Corporation's stock:

(i) remains at ₹ 500 after 3 months.

(ii) falls at ₹ 350 after 3 months.

(iii) rises to ₹ 600.

Assume the option size is 100 shares of Delta Corporation.

(MTP April – 2022, SM TYK – 19)

Solution:

Calculation of Profit & Loss

(i) Price of share on maturity ₹ 500: In this situation, Mr. X will not exercise call option & put option, hence

Gross Payoff	= 0
(-) Cost of Strategy	= ₹ 35
Loss	= ₹ 35

Loss on 100 shares (₹ 35 × 100) = ₹ 3,500

(ii) Price of share ₹ 350: In this situation, Mr. X will exercise his put option & call option will lapse

Gross Payoff (450 – 350)	= ₹ 100
(-) Cost of Strategy	= ₹ 35
Profit	= ₹ 65

Profit on 100 shares (₹ 65 × 100) = ₹ 6,500

(iii) Price of share ₹ 600: In this situation, Mr. X will exercise his call option & put option will lapse

Gross Payoff (600 – 550) = ₹ 50

(-) Cost of Strategy = ₹ 35

Profit = ₹ 15

Profit on 100 shares (₹ 15 × 100) = ₹ 1,500

Question – 05

The market received rumour about ABC corporation's tie-up with a multinational company. This has induced the market price to move up. If the rumour is false, the ABC corporation stock price will probably fall dramatically. To protect from this an investor has bought the call and put options.

He purchased one 3 months call with a striking price of ₹ 42 for ₹ 2 premium, and paid Re.1 per share premium for a 3 months put with a striking price of ` 40.

(i) Determine the Investor's position if the tie up offer bids the price of ABC Corporation's stock up to ₹ 43 in 3 months.

(ii) Determine the Investor's ending position, if the tie up program me fails and the price of the stocks falls to ₹ 36 in 3 months.

(SM TYK – 16)

Solution:

Cost of Strategy Assume = 100 shares

Cost = (₹ 2 + ₹ 1) × 100 shares

= ₹ 300

Price of Shares ₹ 43

In this situation call option will exercise & put option will lapse

Gross payoff (43 – 42) = ₹ 1

(–) Cost of Strategy = ₹ 3

Loss = ₹ 2

(×) No. of shares = 100